Windigipet 2025 – Arrival Board - MQTT integration

10-7-2025 – Jens Krogsgaard, Copenhagen - Denmark

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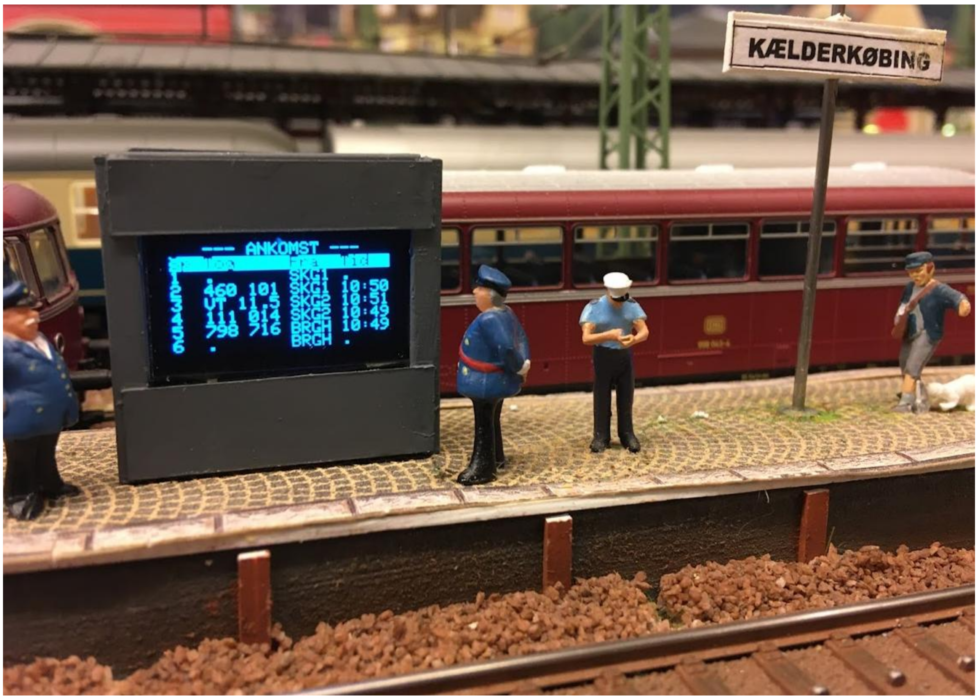
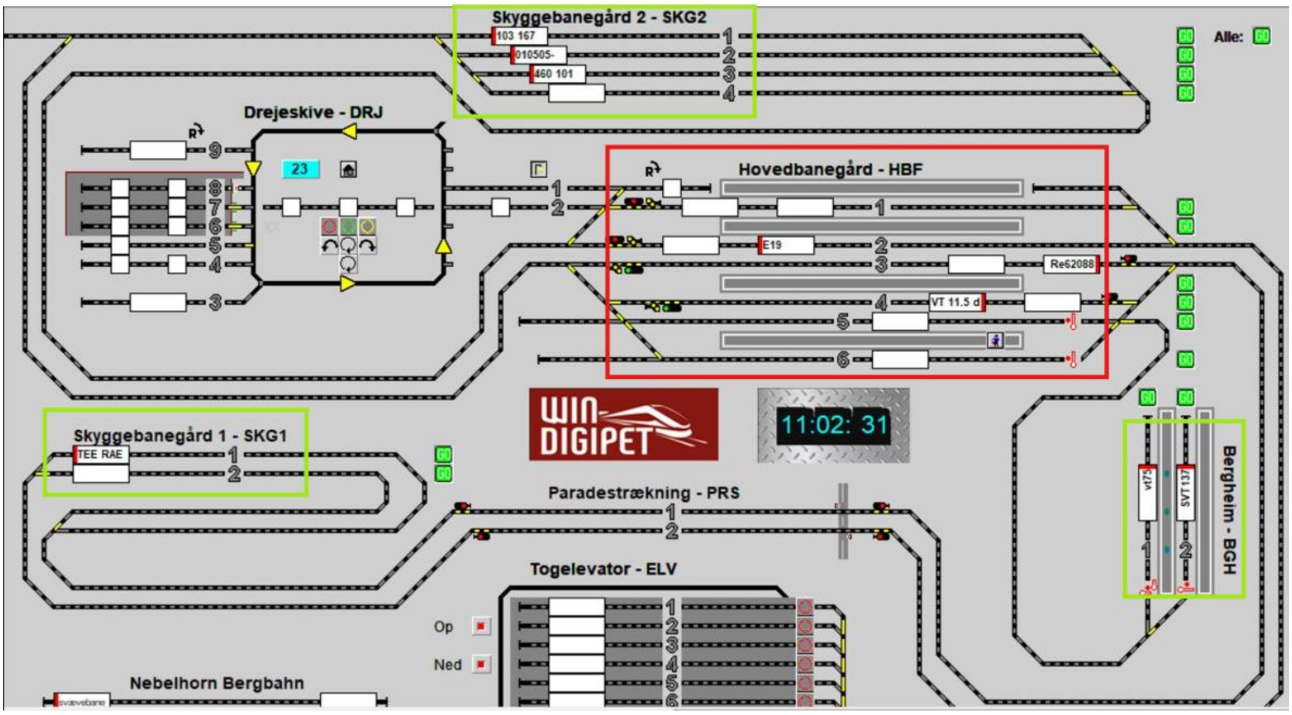
1. Summary

Five years ago, I created a small arrival board with real-time data. Back then, it wasn't as easy to extract data from Windigipet and display it on a small 0.96-inch screen. With the new possibilities of MQTT integration in Windigipet 2025, it has become much easier. In this document, I describe the new solution. I have previously created a document that describes the installation and more in a bit more detail. Here you can find more information about the basics of Windigipet 2025 and MQTT:

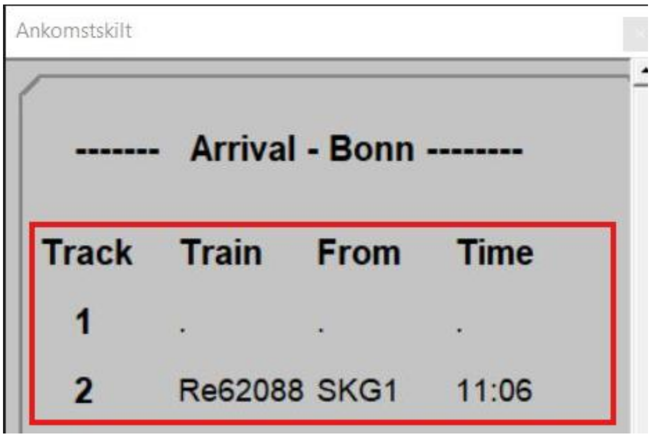
Windigipet 2025 og MQTT



2. We set the scene



I have a main station with 2 tracks, and from here, trains arrive at and depart for two staging yards, SKG1 and SKG2, as well as to Bergheim station (BGH). The arrival board should apply to the main station, and when a train runs through it, the following should be displayed:



Ankomstskilt

------- Arrival - Bonn --------

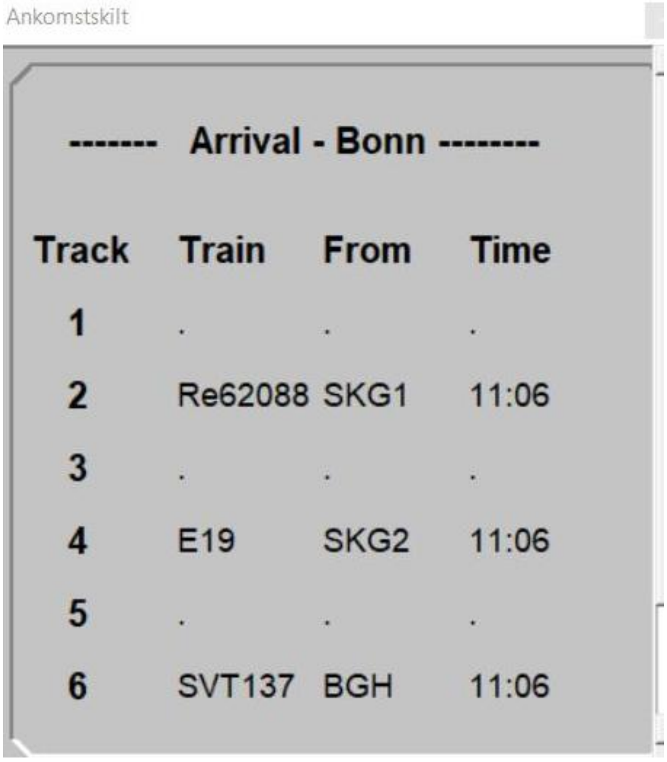
Track	Train	From	Time
1	.	.	.
2	Re62088	SKG1	11:06

Here's the English translation:

Here is an example showing that train Re62088 arrives at track 2 from SKG1 at 11:05. Simultaneously, it can be seen that the train on track 1 has departed the station.

3. Create Arrive-Sign in Windigipet.

I'll start by creating an arrival board in Windigipet (Multiplan). For each of tracks 1 to 6, there are three variables: Train, From and Arrival Time.

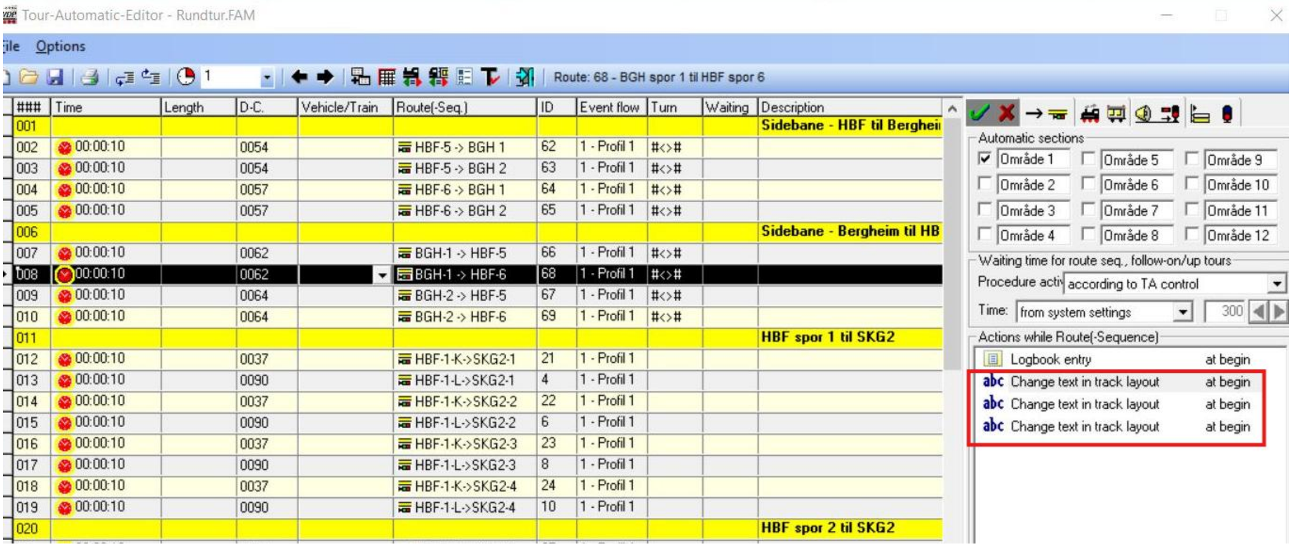


Ankomstskilt

------- Arrival - Bonn --------

Track	Train	From	Time
1	.	.	.
2	Re62088	SKG1	11:06
3	.	.	.
4	E19	SKG2	11:06
5	.	.	.
6	SVT137	BGH	11:06

3.1. Tour-Automatic



Tour-Automatic-Editor - Rundtur.FAM

Route: 68 - BGH spor 1 til HBF spor 6

###	Time	Length	D-C.	Vehicle/Train	Route(-Seq.)	ID	Event flow	Turn	Waiting	Description
001										Sidebane - HBF til Berghei
002	00:00:10		0054		HBF-5 -> BGH 1	62	1 - Profil 1	#<>#		
003	00:00:10		0054		HBF-5 -> BGH 2	63	1 - Profil 1	#<>#		
004	00:00:10		0057		HBF-6 -> BGH 1	64	1 - Profil 1	#<>#		
005	00:00:10		0057		HBF-6 -> BGH 2	65	1 - Profil 1	#<>#		
006										Sidebane - Bergheim til HB
007	00:00:10		0062		BGH-1 -> HBF-5	66	1 - Profil 1	#<>#		
008	00:00:10		0062		BGH-1 -> HBF-6	68	1 - Profil 1	#<>#		
009	00:00:10		0064		BGH-2 -> HBF-5	67	1 - Profil 1	#<>#		
010	00:00:10		0064		BGH-2 -> HBF-6	69	1 - Profil 1	#<>#		
011										HBF spor 1 til SKG2
012	00:00:10		0037		HBF-1-K->SKG2-1	21	1 - Profil 1			
013	00:00:10		0090		HBF-1-L->SKG2-1	4	1 - Profil 1			
014	00:00:10		0037		HBF-1-K->SKG2-2	22	1 - Profil 1			
015	00:00:10		0090		HBF-1-L->SKG2-2	6	1 - Profil 1			
016	00:00:10		0037		HBF-1-K->SKG2-3	23	1 - Profil 1			
017	00:00:10		0090		HBF-1-L->SKG2-3	8	1 - Profil 1			
018	00:00:10		0037		HBF-1-K->SKG2-4	24	1 - Profil 1			
019	00:00:10		0090		HBF-1-L->SKG2-4	10	1 - Profil 1			
020										HBF spor 2 til SKG2

Automatic sections

☑ Område 1 □ Område 5 □ Område 9
□ Område 2 □ Område 6 □ Område 10
□ Område 3 □ Område 7 □ Område 11
□ Område 4 □ Område 8 □ Område 12

Waiting time for route seq., follow-on/up tours

Procedure acti according to TA control

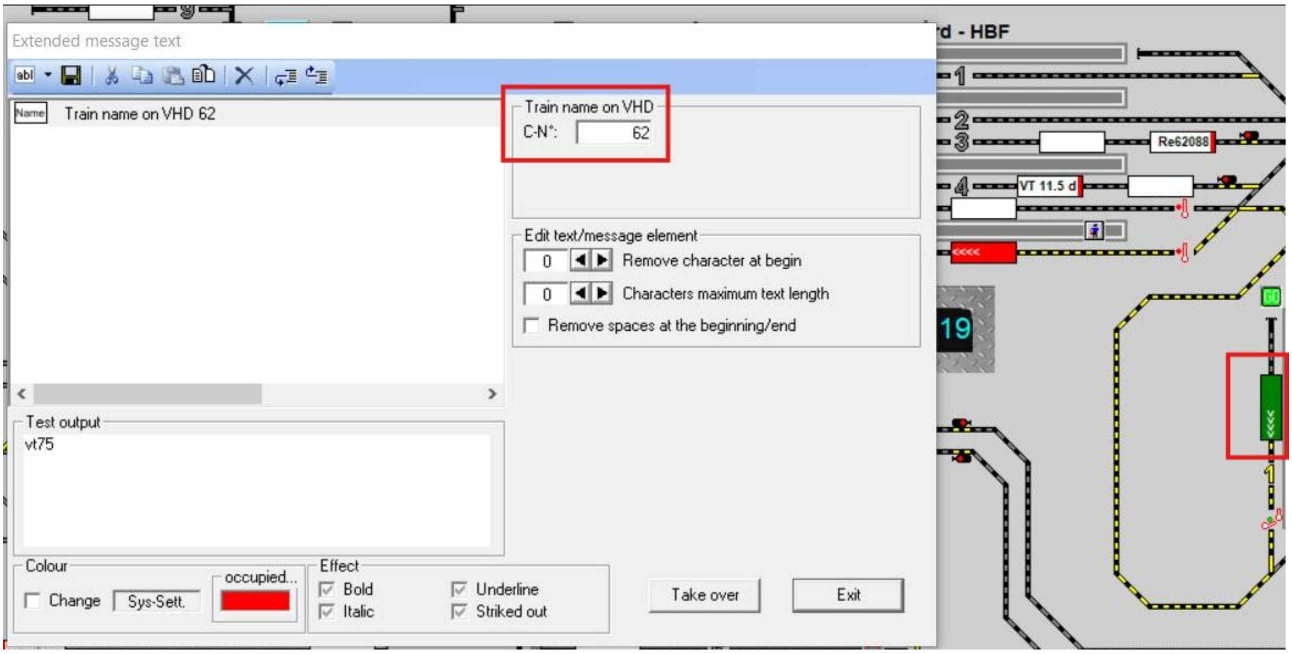
Time: from system settings 300

Actions while Route(-Sequence)

Logbook entry	at begin
abc Change text in track layout	at begin
abc Change text in track layout	at begin
abc Change text in track layout	at begin

For each line in the automation that runs from or to the main station, I create 3 Actions – one for each of the three variables: Train, From (origin), and Arrival Time.

Train:



Extended message text

Name Train name on VHD 62

Train name on VHD
C-N°: 62

Edit text/message element
0 Remove character at begin
0 Characters maximum text length
□ Remove spaces at the beginning/end

Test output
vt75

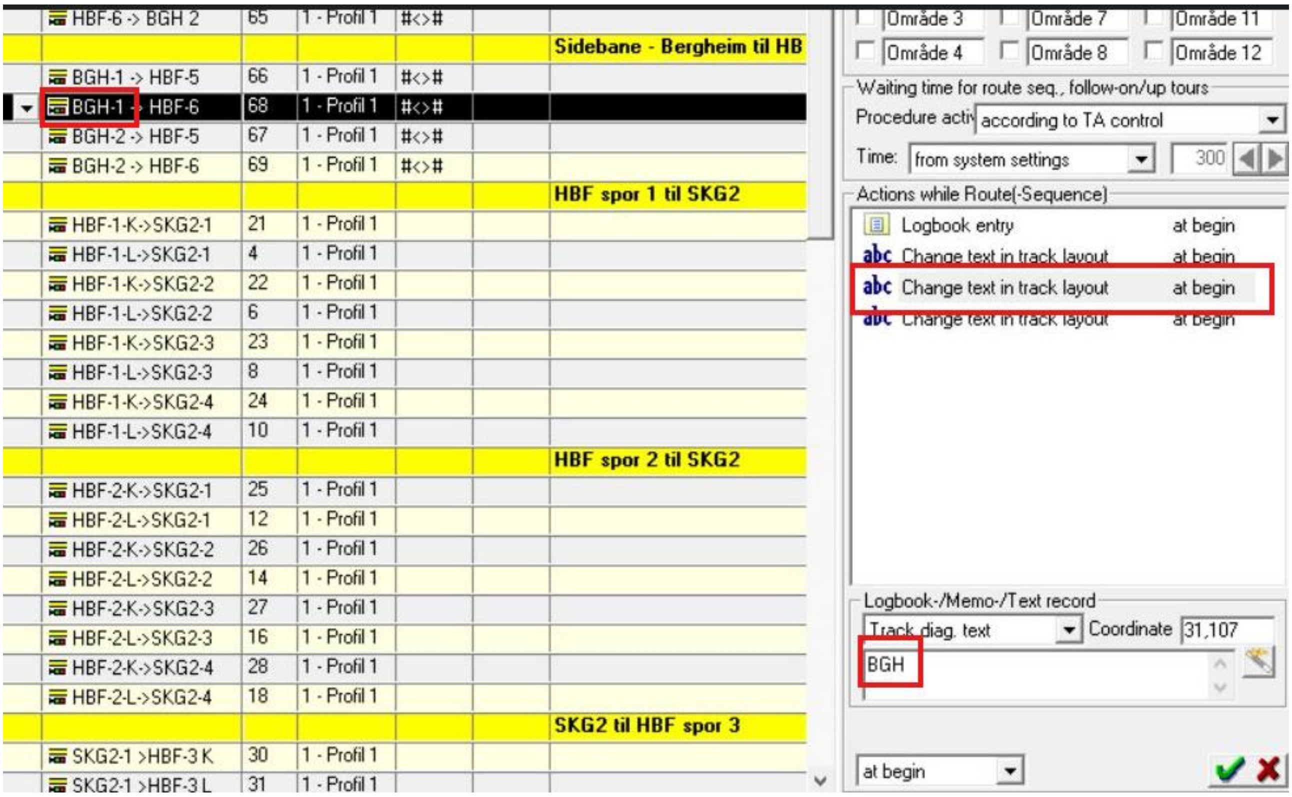
Colour
□ Change Sys-Sett. occupied...

Effect
☑ Bold ☑ Underline
☑ Italic ☑ Striked out

Take over Exit

Here, the train name is transferred from the starting position – in this case, BGH. And we can see that the train arrives at track 6, so it is this label that is updated.

From:



HBF-6 -> BGH 2	65	1 - Profil 1	#<>#	
				Sidebane - Bergheim til HB
BGH-1 -> HBF-5	66	1 - Profil 1	#<>#	
BGH-1 -> HBF-6	68	1 - Profil 1	#<>#	
BGH-2 -> HBF-5	67	1 - Profil 1	#<>#	
BGH-2 -> HBF-6	69	1 - Profil 1	#<>#	
				HBF spor 1 til SKG2
HBF-1-K->SKG2-1	21	1 - Profil 1		
HBF-1-L->SKG2-1	4	1 - Profil 1		
HBF-1-K->SKG2-2	22	1 - Profil 1		
HBF-1-L->SKG2-2	6	1 - Profil 1		
HBF-1-K->SKG2-3	23	1 - Profil 1		
HBF-1-L->SKG2-3	8	1 - Profil 1		
HBF-1-K->SKG2-4	24	1 - Profil 1		
HBF-1-L->SKG2-4	10	1 - Profil 1		
				HBF spor 2 til SKG2
HBF-2-K->SKG2-1	25	1 - Profil 1		
HBF-2-L->SKG2-1	12	1 - Profil 1		
HBF-2-K->SKG2-2	26	1 - Profil 1		
HBF-2-L->SKG2-2	14	1 - Profil 1		
HBF-2-K->SKG2-3	27	1 - Profil 1		
HBF-2-L->SKG2-3	16	1 - Profil 1		
HBF-2-K->SKG2-4	28	1 - Profil 1		
HBF-2-L->SKG2-4	18	1 - Profil 1		
				SKG2 til HBF spor 3
SKG2-1 >HBF-3 K	30	1 - Profil 1		
SKG2-1 >HBF-3 L	31	1 - Profil 1		

□ Område 3 □ Område 7 □ Område 11
□ Område 4 □ Område 8 □ Område 12

Waiting time for route seq., follow-on/up tours
Procedure acti according to TA control
Time: from system settings 300

Actions while Route(-Sequence)

Logbook entry	at begin
Change text in track layout	at begin
Change text in track layout	at begin
Change text in track layout	at begin

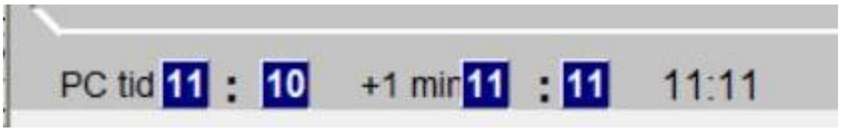
Logbook-/Memo-/Text record
Track diag. text Coordinate 31,107
BGH

at begin

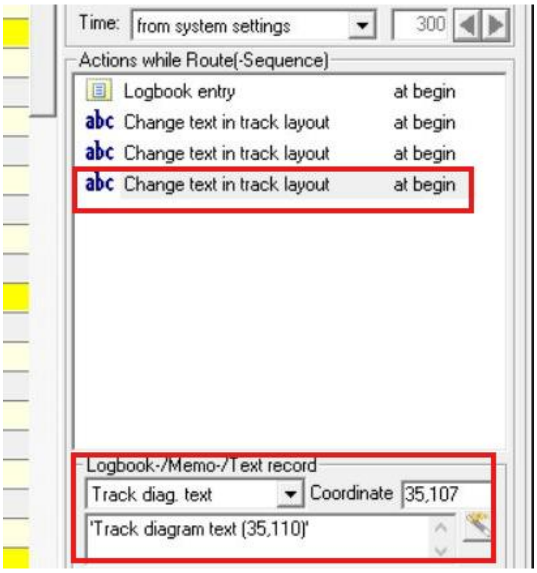
For each line, we can see where the train originates from – in the example shown, it's from BGH.

Time:

It takes approximately 30 to 60 seconds to travel to the main station. As an approximation, we'll assume 1 minute. We use PC time, add 1 minute, and finally save the result in a text field that we can use for the arrival time.



PC tid 11 : 10 +1 mir 11 : 11 11:11



Time: from system settings 300

Actions while Route(-Sequence)

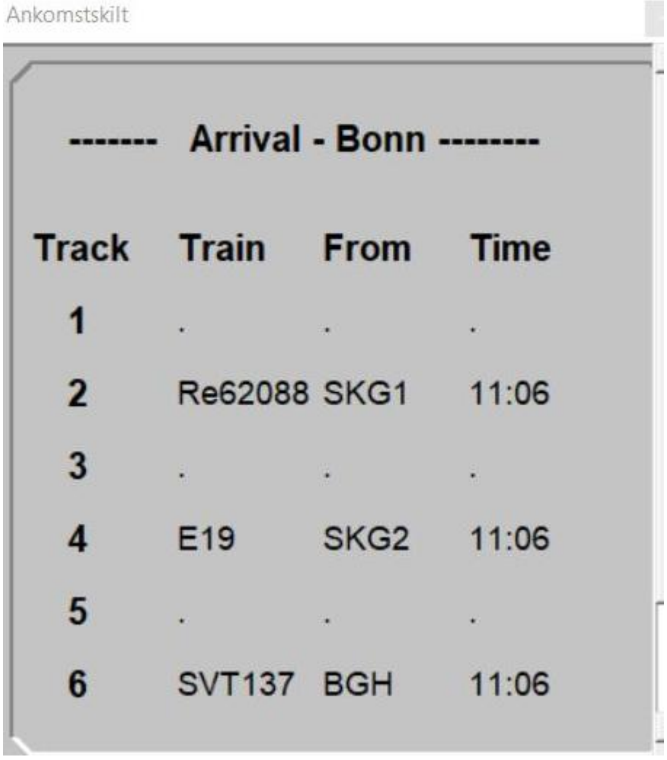
Logbook entry	at begin
abc Change text in track layout	at begin
abc Change text in track layout	at begin
abc Change text in track layout	at begin

Logbook-/Memo-/Text record

Track diag. text Coordinate 35,107

'Track diagram text (35,110)'

Now we have a complete arrival board we can test.



Ankomstskilt

------- Arrival - Bonn --------

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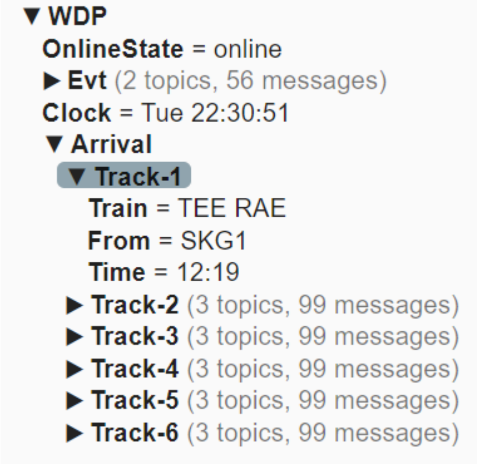
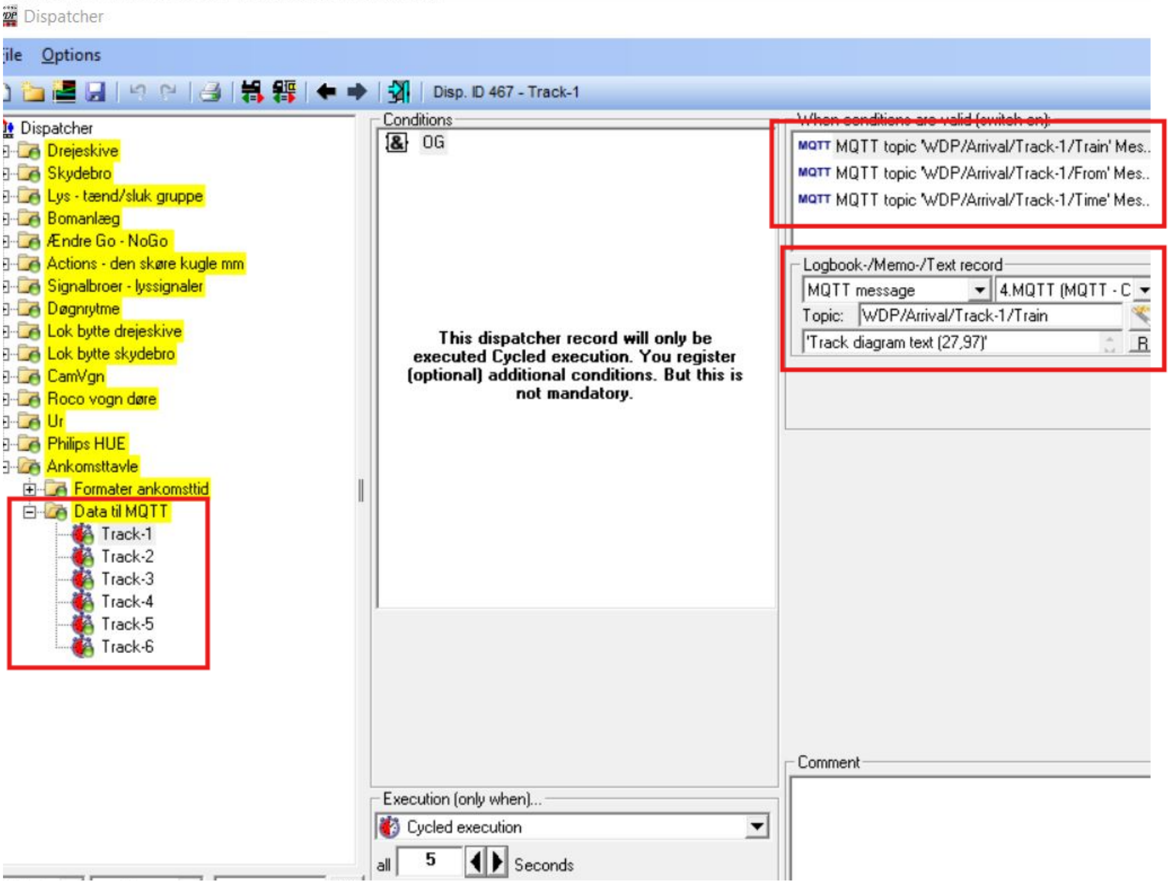
1	.	.	.
2	Re62088	SKG1	11:06
3	.	.	.
4	E19	SKG2	11:06
5	.	.	.
6	SVT137	BGH	11:06

4. Send data to MQTT Broker



- ▼ **WDP**
  - **OnlineState** = online
  - ▶ **Evt** (2 topics, 56 messages)
  - **Clock** = Tue 22:30:51
  - ▼ **Arrival**
    - ▼ **Track-1**
      - **Train** = TEE RAE
      - **From** = SKG1
      - **Time** = 12:19
    - ▶ **Track-2** (3 topics, 99 messages)
    - ▶ **Track-3** (3 topics, 99 messages)
    - ▶ **Track-4** (3 topics, 99 messages)
    - ▶ **Track-5** (3 topics, 99 messages)
    - ▶ **Track-6** (3 topics, 99 messages)

We now need to send data to MQTT in a structure like the one shown. For each of the 6 tracks, we have the three variables – Train, From and Time.



MQTT MQTT topic 'WDP/Arrival/Track-1/Train' Mes..
MQTT MQTT topic 'WDP/Arrival/Track-1/From' Mes..
MQTT MQTT topic 'WDP/Arrival/Track-1/Time' Mes..

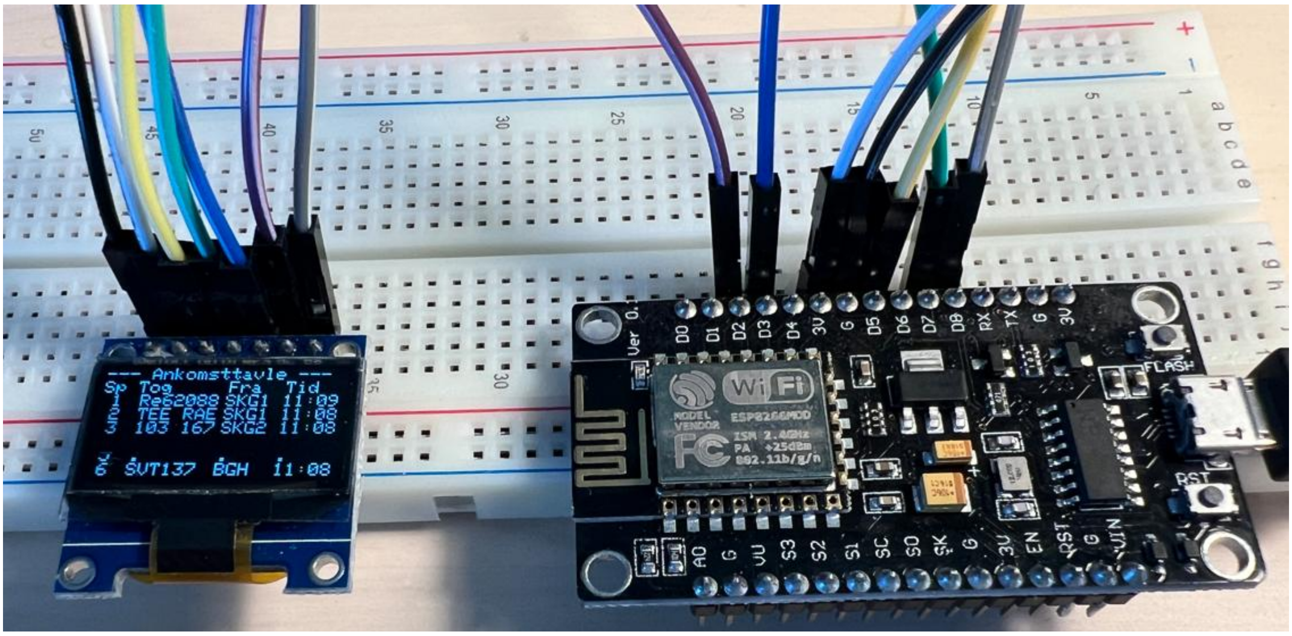
MQTT message | 4.MQTT (MQTT - C
Topic: WDP/Arrival/Track-1/Train
'Track diagram text (27,97)'

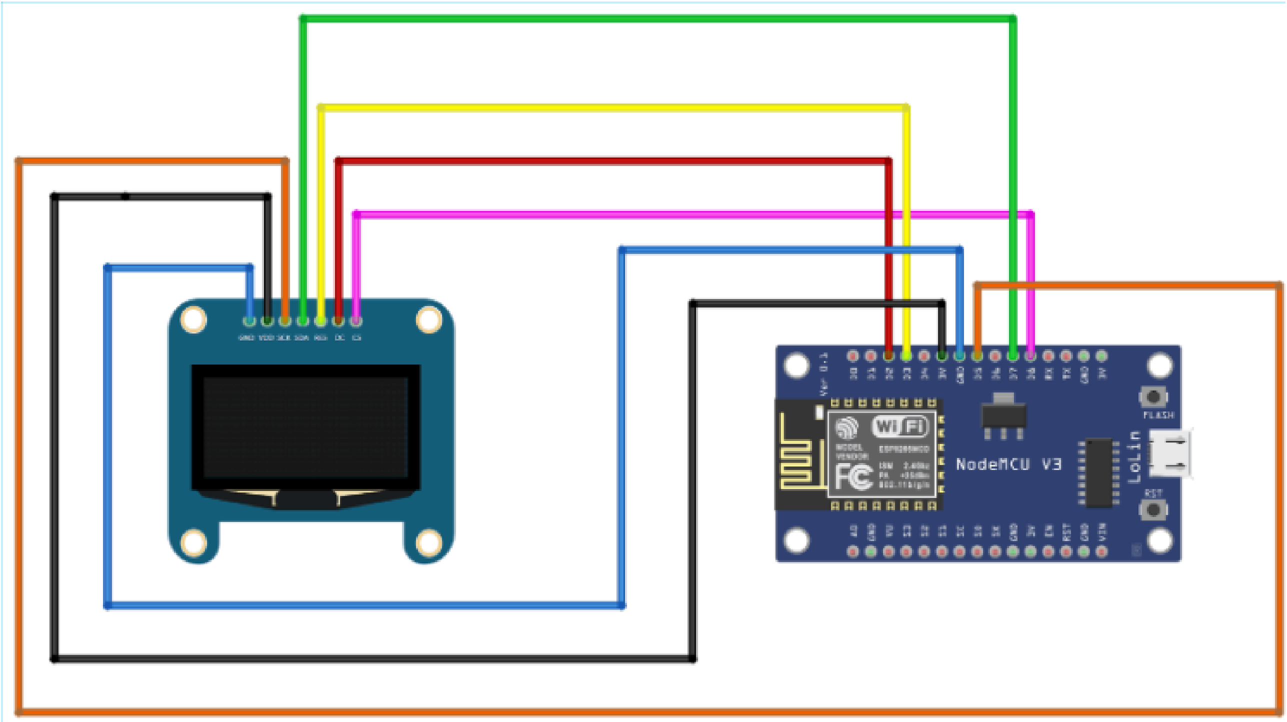
This dispatcher record will only be executed Cycled execution. You register (optional) additional conditions. But this is not mandatory.

Cycled execution
all 5 Seconds

We use the dispatcher to send data to MQTT. For each of the 6 tracks, we select the 3 variables: train, origin, and arrival time, and send them.

5. ESP8266 project





For the project, I’m using an ESP8266 together with a 0.96-inch OLED screen. They come with 7 or 4 pins. Here, I’ve used one with 7 pins.

You can download the code from here – at your own risk:

Download code

6. Testing / testing and testing 😊

I am currently testing the arrival sign. So far, it's working well. Once the testing is complete, the sign will be built into the layout to replace the old solution.